

**Testimony of Stuart L. Sessions  
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Before the  
Subcommittee on Regulatory Affairs  
of the  
Committee on Government Reform  
U.S. House of Representatives  
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**Introduction**

Good afternoon, Madam Chairman and Members of the Subcommittee on Regulatory Affairs. Thank you for inviting me today to testify on the impact of regulation on U.S. manufacturing.

I am Stuart Sessions, Vice President of the consulting firm Environomics, Inc. I am representing two manufacturing industry groups: 1) the Surface Finishing Industry Council, which consists of the three leading national metal finishing trade associations, and 2) the Specialty Steel Industry of North America. I am an economist, and have worked on environment, health and safety regulatory issues for some 30 years, for both government and industry.

For the past nine months I have been retained by several industry groups to work on the Occupational Safety and Health Administration's (OSHA's) proposed regulation lowering the Permissible Exposure Limit (PEL) for worker exposure to hexavalent chromium. The proposed regulation would reduce the current PEL of 52 ug/m<sup>3</sup> to 1 ug/m<sup>3</sup>.

The regulation is on a fast track because of a Court-ordered schedule. The regulation was proposed in October, 2004. OSHA took public comments and held hearings on the rule during this past fall and winter, and is expected to send a draft final rule to the Office of Management and Budget within 60 days. According to the Court-ordered schedule, a final regulation must be promulgated by January 18, 2006.

Industry believes that the regulation as proposed would entail very high compliance costs. It would result in the closure of many U.S. manufacturing facilities and loss of many manufacturing jobs. It would also substantially erode the competitiveness of key U.S. manufactured products in world markets. I will spend most of my time today summarizing these serious adverse impacts that U.S. manufacturers foresee as a result of this proposed regulation.

**1. The projected costs of the regulation are very high**

Our first concern is with the magnitude of the projected costs of the regulation. We estimate that the proposed PEL will cost nearly \$2.9 billion per year in compliance costs (see Exhibit 1). This price tag would put this regulation among the very most expensive environment, safety or health

regulations considered by the government in recent years.<sup>1</sup> The high cost is due to both the broad scope of the regulation and the extreme difficulty in achieving the more than 98% reduction it requires relative to the current PEL.

In total, OSHA estimates that the proposed rule limiting worker exposure to hexavalent chromium will affect 31 different manufacturing industries plus shipbuilding and construction. We have identified several additional industries that will be affected, but OSHA and we agree generally that the proposed rule will affect a very wide range of U.S. manufacturing operations. Industry disagrees sharply with OSHA, however, about the magnitude of the total costs of the proposed rule. We believe that OSHA has seriously underestimated costs: by omitting affected industries and segments of industries, by drastically undercounting the number of workers and facilities that will be affected, by overestimating the effectiveness of the control measures that will be implemented to comply, by underestimating the unit costs of these control measures, and for other reasons.

The proposed rule will impose the largest costs on three manufacturing industries:

1. The aerospace manufacturing industry. We estimate a cost of about \$1.1 billion per year, meaning that the cost of this rule for this one industry alone would equal the cost of the most expensive Federal regulation issued during Fiscal Year 2004. Furthermore, we have not yet estimated the additional costs this rule would impose on aircraft maintenance operations as opposed to aircraft manufacturing, including Department of Defense and airline and private plane maintenance activities. The Aerospace Industries Association has estimated that compliance with the proposed rule will cost about \$15,000 - \$18,000 per affected employee per year.
2. The metal finishing industry. We estimate a cost of \$780 million per year, spread across the roughly 2,700 U.S. metal finishing facilities that use hexavalent chromium. This amounts to a cost of about \$16,000 per affected employee per year.
3. The steel industry and its customer industries that process stainless and alloy steel. We estimate a cost of about \$600 million per year for steel makers and their customers. Most of the costs for steel processing industries will involve changing welding processes for stainless and alloy steels. These changes can involve a reduction in worker productivity of 25 – 40%, plus other costs.

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<sup>1</sup> Since 1999, only about 15% of all regulations reviewed by the Office of Management and Budget (OMB) have been economically significant (usually meaning that they cost in excess of \$100 million/year) ([www.reginfo.gov/public/do/eoCountsSearch](http://www.reginfo.gov/public/do/eoCountsSearch)). During Fiscal Year 2004 (the most recent period for which such a compilation is available), 4,088 final rules were published in the Federal Register. 364 of these rules were reviewed by OMB, and only one or two of the 26 final rules cited by OMB as “requiring substantial private expenditures or providing new social benefits” cost as much as \$1 billion/year: the Department of Homeland Security rule on Required Advance Electronic Presentation of Cargo Information (\$1.1 billion/year) and perhaps EPA’s rule on Nonroad Diesel Engines and Fuel (costs beginning at \$53 million in 2008 and eventually increasing to \$2.1 billion/year in 2030). No rule promulgated during Fiscal Year 2004 rules cost as much as industry estimates the proposed OSHA PEL would cost. (See U.S. Office of Management and Budget. Draft 2005 Report to Congress on the Costs and Benefits of Federal Regulations.)

Other manufacturing industries will also bear significant costs, as shown in Exhibit 1. Note in the Exhibit that several affected industries have not yet prepared estimates of what the rule will cost them. For these industries the Exhibit shows only the costs that OSHA has estimated, and we believe that OSHA's estimates are generally far too low.

## **2. Many domestic manufacturers will not be able to afford these compliance costs and will be forced to close**

For many affected manufacturing facilities, these compliance costs will be more than they can afford and they will have to go out of business. Their employees will lose their jobs. Facility closures will be most common in those affected industries where the industry consists mostly of small businesses, where profit margins are relatively low, and/or where competition from foreign producers is intense. Some examples follow.

Half or more of all metal finishing job shops will close. 80,000 employees in these facilities will lose their jobs, and another 70,000 or more jobs will be lost among suppliers and customers of these closed facilities

The job shop metal finishing industry consists almost entirely of small businesses, with most of them being family-owned. We performed detailed case studies to estimate whether six representative metal finishing facilities could afford to comply with the proposed PEL. Engineers estimated the costs that each facility would have to incur to comply, and economists collected information on the facility's historical revenues and profits and future business prospects. We assessed for each facility the degree to which the facility would be able to pass the compliance costs on to the facility's customers, and the degree to which the facility would have to attempt to absorb the costs out of profits. Ultimately we compared the compliance costs that each facility would have to absorb against that facility's ability to bear these costs. We concluded that more than half of all affected metal finishing job shops will be unable to pay the costs necessary to comply with the proposed rule (see Exhibit 2).

Our conclusion that more than half of all affected job shops would close if faced with the costs to comply with the proposed rule is supported by a recent analysis by the U.S. Environmental Protection Agency (EPA). EPA estimated the economic impact for metal finishers of a water pollution regulation that the Agency was considering. EPA concluded that the water rule's projected compliance costs averaging \$61,000 per year per facility would close about half of all U.S. job shop metal finishers. (Because of this, EPA ultimately decided not to promulgate this regulation.) For the proposed OSHA PEL, we estimate costs averaging well over \$100,000 per year per facility, and thus anticipate facility closures exceeding the rate that would result from the less expensive EPA rule.

Closure of half of all metal finishing operations would result in the direct loss of about 80,000 jobs. Total job losses, adding a very conservative estimate for the multiplier effect among metal finishers' suppliers and customers, might total about 150,000. Note that this estimate of 150,000 jobs lost is for only one small industry sector impacted by the proposed rule.

### Other manufacturing industries also project facility closures and job losses due to the OSHA rule

In written submissions or oral testimony to OSHA, many other industries have estimated that facilities will be forced to close because they can not afford the costs to comply with the proposed PEL, and domestic jobs will be lost in these industries also. Some sample comments:

- X     The Steel Tank Institute/Steel Plate Fabricators Association projects that the rule will reduce employee productivity and increase costs of production by 10 - 15%, causing “jobs to go offshore to companies that do not have these additional time or cost constraints.”
- X     Two large chromate chemicals producers have stated that they will close their domestic facilities and shift their U.S. production of these chemicals to their overseas plants if the rule is promulgated.
- X     The sole U.S. producer of strontium chromate pigment indicates that the investment required for compliance would put the company out of business.
- X     An engineering firm retained by the largest domestic chromium catalyst producer projects that “Resulting profit margins for these products would not warrant retention of the plants by domestic firms. ... there would likely be a shift in production to other countries such as Mexico, Europe or the Far East.”

### **3. The added costs to comply with the proposed rule will disadvantage domestic manufacturers relative to foreign competitors**

The proposed rule requires a very significant reduction in the existing PEL for hexavalent chromium, at very high expected costs. These costs will seriously disadvantage U.S. manufacturers in several key industries relative to foreign producers who do not face such costs.

Exhibit 3 compares the current and proposed U.S. PELs for hexavalent chromium with the occupational exposure limits in other countries. It is apparent that the proposed PEL of 1 ug/m<sup>3</sup> would be far below the limits prevailing for our major trading partners (China, Japan, Mexico, Canada, India, the European Union). I will discuss the impact of the resulting \$2.9 billion annual cost penalty that our domestic industry will suffer relative to foreign competitors.

#### Aerospace

For many years, the aerospace industry has contributed a larger positive amount to the nation's balance of trade than has any other manufacturing industry. In 2004, when the nation's merchandise trade balance was a negative \$651 billion, aerospace contributed a positive \$31 billion. The industry is clearly exceedingly important to the U.S. in international trade.

However, the competitive outlook for the U.S. aerospace industry is cloudy. Foreign

manufacturers are now competitive in both small and large planes. China has a rapidly growing aerospace industry. Foreign firms are poised to compete seriously for U.S. military aircraft contracts. The positive U.S. balance of trade in aerospace has generally been shrinking since it peaked in 1998.

The \$1.1 billion annually in added regulatory costs for domestic manufacturers will amount to a cost penalty of roughly 1 % relative to foreign aerospace manufacturers. This will likely be enough to tip some close competitions to foreign producers. The proposed PEL could hasten the erosion of the longstanding competitive advantage of U.S. aerospace manufacturers.

### Metal finishing

In recent years the metal finishing industry has suffered a sharp loss in business to Asian competitors. As one indicator, sales of metal finishing chemicals in Asia have been growing at more than 8% per year since 2000, while sales in the U.S. have declined at roughly 6% per year. The number of metal finishing shops in the U.S. has fallen by 40 - 50% since the mid -1990s, and domestic employment in metal finishing has declined by some 50,000 - 70,000. The issue has not been an increase in foreign surface finishing of items made in the U.S., but instead the increasing number of items for which all the steps in manufacturing, including surface finishing, are performed abroad.

In this deteriorating business environment, the proposed OSHA regulation will be a competitive disaster for U.S. metal finishers. For those domestic metal finishers who can afford to comply with the proposed regulation, the rule will represent a 2 - 10% or more cost penalty relative to foreign metal finishing competitors. The rule will sharply accelerate the already rapid movement of metal finishing business and jobs overseas.

### Steel, stainless steel and steel processors

The steel industry is another picture of fierce foreign competition. Global overcapacity and foreign dumping of steel in the U.S. produced numerous bankruptcies among U.S. steel producers in 2000 – 2003. The situation has improved since then, but the most recent data still show imports accounting for 25 - 30% of the total U.S. markets for stainless steel. The high level of imports suggests that domestic stainless steel producers will not be able to increase their prices to cover the costs of the OSHA rule. The costs to comply with the OSHA rule will have to be paid mostly out of profits.

The stainless steel industry's downstream customers will also be affected by the revised PEL. Stainless steel processors include many small businesses in a myriad of different industries that make stainless steel tanks, pipes, machine parts, equipment, consumer products, and more. Labor costs can comprise up to 50% of the cost of these products, and labor costs for welding, grinding, cutting and other hot work will increase substantially due to the much lower PEL. Some of the shifts in welding practices needed to meet the tighter PEL can reduce welding labor productivity by 25 - 40 %, as well as requiring new equipment and training. These compliance costs will force many U.S. steel fabricators to outsource more operations to other countries.

Alternatively, stainless steel processors who have a choice in the raw material they use to manufacture their products will consider substituting a non-stainless product to avoid the high compliance cost of the rule. As a result of this pressure to use other materials, domestic consumption of stainless steel will decline.

Either of these two shifts by steel processors will negatively impact the domestic steel producers. A processor who moves abroad will likely buy foreign steel rather than U.S. steel, while a processor who stops using stainless steel altogether will also no longer buy U.S. stainless steel. Domestic stainless steel producers will suffer a double negative impact from the OSHA rule: a loss in profits when they have to absorb the costs of their compliance measures, and a loss in business due to shifts among their steel processing customers.

## **Conclusion**

The proposed reduction of the PEL for hexavalent chromium to  $1 \text{ ug/m}^3$  will impose significant costs on a wide range of domestic manufacturers. These costs will result in facility closures, job losses, and deterioration in the competitive position of U.S. manufacturers in world markets.

The Occupational Safety and Health Act has been interpreted in court decisions to require OSHA to promulgate a PEL that eliminates all significant health risks, but subject to the constraint that the standard must be technically and economically feasible. I have discussed this afternoon industry's views on the economic feasibility question – the proposed PEL is not economically feasible for most of the affected industries. In closing, I would like briefly to mention industry's views on technical feasibility and on health risks from hexavalent chromium.

In short, industry believes that the proposed PEL of  $1 \text{ ug/m}^3$  is not technically feasible for many affected manufacturing activities. Facilities that have engineering controls matching or exceeding those identified by OSHA as adequate to meet the proposed PEL can not ensure compliance with the proposed limit, even with the use of respirators.

With regard to health risks from exposure to hexavalent chromium, industry is committed to protecting the health of its workers. Industry believes there is evidence of significant risks to worker health at high levels of exposure well over the current standard of  $52 \text{ ug/m}^3$ . However, as the PEL option being considered is lowered much below the current standard, uncertainty about health risks increases, particularly for those industries where the nature of hexavalent chromium exposures differs substantially from the exposures in the studies on which OSHA relied. A more appropriate approach recognizes the uncertainties and lack of precision with the data and employs more reasonable assumptions regarding the risks.

On balance, industry would support a reduction in the PEL for hexavalent chromium to somewhere in the  $20 - 25 \text{ ug/m}^3$  range. Such a standard would protect workers' health and would be operationally feasible.

Thank you for the opportunity to participate in this hearing.

**Exhibit 1. Estimated Costs of the Proposed Rule (in Millions of \$/yr)**

	Sector	OSHA Estimate	Industry Estimate	Comments
<i>Sectors where industry has provided cost comments</i>				
1	Electroplating	\$54.4	\$780.0	Missed half the industry; other errors
2A	Welding (general industry)	\$73.4	\$523.8	Productivity losses, higher unit costs
2B	Welding (maritime industry)	\$1.8	\$95.0	Many more workers exposed
3A	Painting (general industry)		?	
	Aerospace Manufacturing		\$1,065.0	Vastly more workers exposed
	DoD	\$4.8	?	DoD to submit estimates?
	Commercial Aircraft Maintenance		?	
	Coil Coating		?	
3B	Painting (maritime industry)	\$7.6	\$53.8	Many more workers exposed
5	Chromate Pigment Producers	\$0.1	\$0.3	2-3 times higher
7	Chromium Catalyst Producers	\$3.0	\$29.9	10 times higher
10	Plastic Colorant Producers and Users	\$1.7	\$5.2	3 times higher
11	Plating Mixture Producers	\$0.2	\$2.4	
14	Steel Mills	\$1.0		
30	Superalloy Producers	\$0.1	\$78.7	50-100 times higher
	Steel Processors	\$0.0		
26A	Woodworking (general industry)	\$0.9	\$0.3	
26B	Woodworking (maritime industry)	\$0.0	\$0.0	
26C	Woodworking (construction industry)	\$4.0	\$1.2	Lower exposures
26D	Woodworking (government)	\$0.1	\$0.0	
32	Precast Concrete Products Producers	\$14.4	\$135.3	9 times higher; More establishments
<i>Sectors where industry will incur costs but OSHA has estimated none</i>				
	Auto repair and body shops			
	Mining			MSHA std now 100 ug/m3
	Fiberglass insulation mfg.		\$61.0	For one company only
	Continuous glass filament mfg.			
	Refractories (metals, glass)			
	Industrial laundries			
<i>Sectors where industry has not provided cost comments (OSHA's cost estimates are shown)</i>				
2C	Welding (construction industry)	\$28.2	\$28.2	
2D	Welding (government)	\$0.5	\$0.5	
3C	Painting (construction industry)	\$2.2	\$2.2	
3D	Painting (government)	\$0.9	\$0.9	
4	Chromate (chromite ore) production	\$0.3	\$0.3	
6	Chromated Copper Arsenate Producers	\$0.0	\$0.0	
8	Paint and Coatings Producers	\$4.8	\$4.8	
9	Printing Ink Producers	\$0.2	\$0.2	
12	Wood Preserving	\$0.0	\$0.0	
13	Chromium Material Producers	\$0.1	\$0.1	
15	Iron and Steel Foundries	\$7.1	\$7.1	
16	Chromium Dioxide Producers	\$0.0	\$0.0	
17	Chromium Dye Producers	\$0.3	\$0.3	
18	Chromium Sulfate Producers	\$0.0	\$0.0	
19	Chemical Distributors	\$5.4	\$5.4	
20	Textile Dyeing	\$1.5	\$1.5	
21	Colored Glass Producers	\$0.0	\$0.0	
22	Printing	\$0.3	\$0.3	
23	Leather Tanning	\$0.0	\$0.0	
24	Chromium Catalyst Users	\$0.7	\$0.7	
24A	Chromium Catalyst Users (Service)	\$0.3	\$0.3	
25	Refractory Brick Producers	\$0.1	\$0.1	
27	Solid Waste Incineration	\$1.1	\$1.1	
27A	Incinerators (government)	\$0.1	\$0.1	
28	Oil and Gas Well Drilling	\$0.0	\$0.0	
29	Portland Cement Producers	\$0.8	\$0.8	
31B	Construction (Refractory Repair)	\$0.0	\$0.0	
31C	Construction (Hazardous Waste Work)	\$0.1	\$0.1	
31CG	Haz. Waste (government)	\$0.1	\$0.1	
31D	Construction (Industrial Rehabilitation)	\$0.1	\$0.1	
31DG	Industrial Rehab. (government)	\$0.0	\$0.0	
	<b>Total</b>	\$222.9	\$2,887.0	
	General Industry	\$178.9	\$2,706.4	
	Construction	\$34.6	\$31.8	
	Maritime	\$9.4	\$148.8	

**Exhibit 2. Summary Results on Affordability of Compliance Costs for the Proposed  
PEL for Six Electroplating Case Study Facilities**

Facility and Type	Compliance Cost (\$ in thousands/yr)		Lower Cost Est. as		Higher Cost Est. as		Conclusions
	Lower Est.	Higher Est.	% Profits	% Revenues	% Profits	% Revenues	
A Dec	\$115.0	\$405.1	30-50%	1-2%	> 100%	4-6%	Will close for higher costs, not low
B Hard	\$75.9	\$212.5	> 100%	4-6%	> 100%	10-15%	Will close
C Zinc*	\$404.5	\$592.6	> 100%	4-6%	> 100%	6-10%	Will close
D Dec	\$86.0	\$177.5	> 100%	6-10%	> 100%	15-20%	Will close
E Anod +	\$89.3	\$165.1	> 100%	3-4%	> 100%	6-10%	Will close Cr(VI) lines
F Hard	\$96.8	\$188.3	> 100%	2-3%	> 100%	4-6%	Will close for higher costs, maybe for low

\* = Facility performs zinc plating, not hard chrome/decorative chrome/Cr anodizing; thus not included in OSHA's analysis

+ = Only 35% of revenues/profits for this facility derive from Cr(VI)-using processes



**Exhibit 3. Occupational Exposure Limits for Cr(VI):  
Comparison of Selected Countries (2002)**

Country		Occupational Exposure Limit
United States		
◆	OSHA Proposed	1.0 ug/m3
◆	OSHA Current	52 ug/m3
Mexico		50 ug/m3
Canada (Ontario)		50 ug/m3
Japan		50 ug/m3
European Union		50 ug/m3
France, Germany, UK, Finland		50 ug/m3
China		50 ug/m3
India		50 ug/m3
<i>Sweden</i>		<i>20 ug/m3</i>
<i>Denmark</i>		<i>5 ug/m3</i>